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January 30, 2002

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
445 12th Street SW
Washington DC 20554

Re: ET Docket No. 98-153 – Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems
Ex Parte Communication

Dear Mr. Caton:

Pursuant to Section 1.1206(a)(2) of the Commission's rules and on behalf of XtremeSpectrum, Inc., I am filing this letter electronically to report a written ex parte communication in the above-referenced proceeding.

On January 29, 2002, I transmitted copies of the attached documents to Peter Tenhula, Senior Legal Advisor to Chairman Powell; Bryan Tramont, Senior Legal Advisor to Commissioner Abernathy; Paul Margie, Senior Legal Advisor to Commissioner Copps; and Monica Desai, Legal Advisor to Commissioner Martin.

If there are questions about this submission, please call me at the number above.

Respectfully submitted,

Michele C. Farquhar
Counsel for XtremeSpectrum, Inc.

Attachments

Ultra-Wideband:
A Wireless Renaissance in the Making

Prepared by XtremeSpectrum
January 2002

For More Information Contact: Diane Orr, Orr & Company, diane@orr-co.com
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Ultra-Wideband: A Wireless Renaissance in the Making

While wireless network solutions have progressed into the enterprise and public access markets, the home networking market has still not found an appropriate wireless solution. Multimedia consumer appliances and applications are fueling an increased demand for wireless solutions for the home market, but existing solutions are not providing the unique features the home market demands. In many ways, wireless technology for the home is in "the dark ages." Nothing fundamentally different has been created within the science of wireless communications to allow for a shift in the classic wireless paradigm. For decades, classic radio design has involved a fundamental tradeoff between data rate, cost of the implementation at the semiconductor level, and the amount of power consumed by the total solution. When one utilizes classic radio design techniques to increase data rate performance, a penalty is paid in the form of increased cost and power consumption. This is primarily due to the increased signal processing necessary to achieve the higher data rates.

The home market is unique in that it simultaneously requires high data rates (for multiple streams of digital video), very low cost (for broad consumer adoption), and very low power consumption (for embedding in to battery powered handheld appliances). Ultra-wideband is a response to this market's needs by undertaking a fundamentally new approach to the design of a wireless communication system. In many ways, it is DaVinci's "David" emerging from decades of the classic approach, but creating an enduring approach that will catalyze a fundamentally different way to approach wireless communications within the consumer electronics market.

The issue of "whole house coverage"

Key to success in the home market is the developing a network architecture that allows for wireless connectivity throughout the "whole house." Original equipment manufacturers (OEMs) that are focusing on the home market are struggling to meet this demand. Today's attempts at wireless home networks are usually directly connected to a broadband connection, via cable or xDSL modem, and try to cover the entire domestic area from one point of access. This is usually referred to as the residential gateway.

A typical home can be a 500 square-foot apartment, a 10,000 square-foot mansion and everything in between. No "whole house" solution exists today—nor can it for the simple fact that every wireless solution is limited in terms of the amount of range it has at a given data rate and one cannot apriori assess the size of the home.

Mesh Networking Using Ultra-wideband

While this mono cluster approach might sound cost effective to the general end user and service provider, it is in fact totally unsuitable for the reality of "whole house coverage." What is effective is a scalable and dynamic network configuration that can grow as a function of the number of appliances that need to be connected or as the coverage area of the home varies. This is a new form of networking known as "mesh." Mesh networking fundamentally allows each appliance in the network to act as both a user on the network as well as a part of the network infrastructure (see Figure #1). The appliance in essence can act as an access point within the network and serve as a way to reach other devices outside the range limitation of the wireless connection. In certain scenarios, low cost fixed units can be affixed to a wall socket in a room to provide connectivity when adjacent devices are too far away.

This type of architecture creates more capacity and more coverage as more appliances are enabled throughout the home. In addition, ultra-wideband as the wireless transmission technology used in this architecture allows for very low cost and low power access points within the home. Existing wireless solutions simply cannot meet the cost and data rate requirements of such an access point.

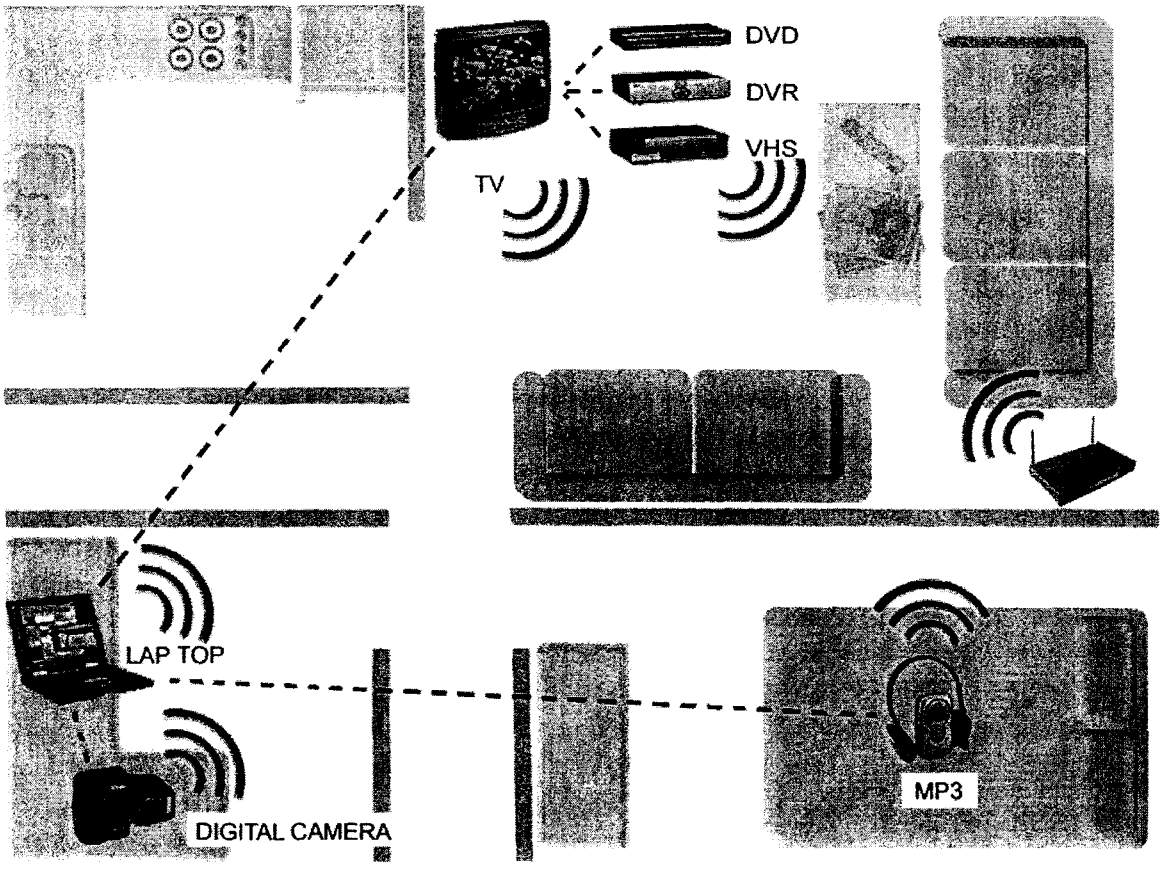
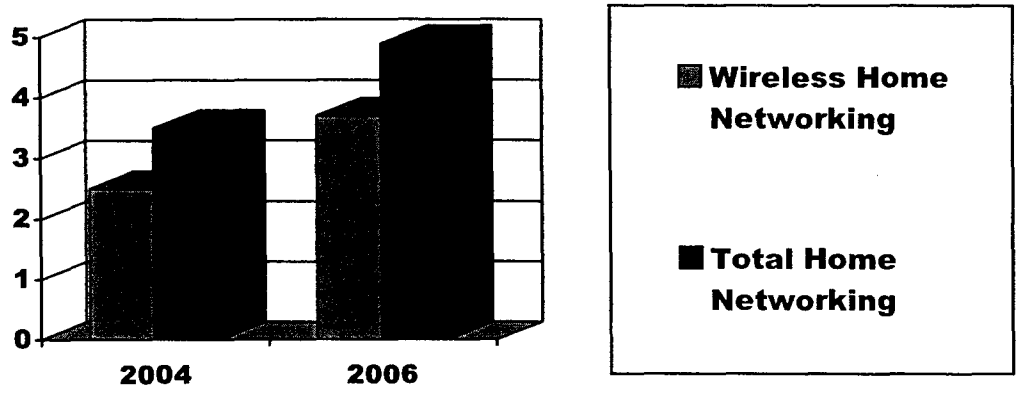


Figure #1: A "mesh" networking topology within the home

Is the Market Big Enough?

According to Scottsdale, Phoenix-based market research firm Cahners In-Stat, the total home networking market is forecast to be a $3.5 billion market in 2004 growing to a $4.9 billion market in 2006. The wireless portion of the home networking market is forecast to be a staggering $2.5 billion market in 2004 growing to a $3.7 billion market in 2006. Broadband Internet access, falling PC prices, technology-savvy children and the rising number of home offices all contribute to this trend as consumers will increasingly demand wireless connectivity.



Source: Cahners In-Stat, 2001

Market analyst firm Frost and Sullivan forecasts for the wireless LAN market show continued 'unexpected tremendous growth' that is forcing analysts to repeatedly update their forecasts. Looking just at the semiconductor segment of those markets, the IC market for connectivity devices, including those that support IEEE 1394, universal serial bus (USB) and Bluetooth, is expected to exceed 3 billion units by 2005.

Existing Home Wireless Solution Don't Fit Home Needs

Wireless solutions currently available to the home market require a fundamental tradeoff between data rate, cost of implementation and power consumption. An increase in data rate has historically demanded a commensurate increase in both cost and power consumption. This is because higher data rate solutions require more sophisticated signal processing techniques and, therefore, more silicon implementation area. This translates into higher cost and increased power consumption.

Today's consumer appliances, however, are more media-rich than ever and tend to be battery powered, handheld and decreasing in cost. Additionally, networks that support multiple streams of digital video and/or audio require even more bandwidth. Devices such as digital TV displays, PDAs and MP3 players all use data formats that range from hundreds of kilobits per second (i.e. MP3 at 320 kbps) to tens of megabits per second (i.e. DVDs at 10 Mbps for MPEG2 and moving to 25 Mbps for MPEG2 HD). Adding wireless connectivity to these appliances must be: fast (high data rate), low power (for enhanced battery performance) and inexpensive (attractive to consumers). Recent studies

show that consumers are only willing to spend 5 to 10 percent of the price of the appliance to make it wirelessly enabled. This puts tremendous pressure on OEMs of consumer electronics devices to deliver high performance, with minimal impact to the total price of the product.

A Comparison of Today's Wireless Networking Solutions

A look at the current solutions on the market demonstrates the difficult tradeoff between data rate, power consumption and cost that OEMs face:

IEEE 802.11a—With a data rate of 54 Mbps and an actual payload rate of about 35 Mbps, 80211.a is the only wireless technology that can potentially support multiple streams of digital video and/or audio. The diminished rate is a basic characteristic of all 802.11x systems due to protocol inefficiencies and overhead. This technology, while offering some real advantages in terms of data rate performance, falls short in streaming of multimedia primarily due to the fundamental design of the MAC protocol. IEEE 802.11x was designed as a packet based data networking protocol similar to Ethernet and thus incorporates none of the unique requirements for streaming multimedia. Also, its power consumption of around 1.5 to 2W makes it completely unusable by battery-powered devices such as PDAs. For the consumer market, it's current cost at the NIC (network interface card) level $150 to $200 is well beyond broadbased consumer adoption. While 802.11a is ideally suited for enterprise or public area access applications, where cost and power consumption issues are not as high of a concern, 802.11a is not intended for home networking applications.

IEEE 802.11b—With a data rate of 11 Mbps, 802.11b—also known as Wi-Fi—is suited for mid-range connectivity tasks in a business environment, such as file sharing and e-mail access. With its strong industry support, 802.11b is a very viable technology for the enterprise market. However, at 11 Mbps, it can't support the emerging multimedia-intensive applications in the consumer electronics market. And, while today's wireless home market is primarily ISP sharing—meaning sharing a single broadband connection among multiple PCs in a household—802.11b was not intended as an indoor, home networking technology. Its power consumption issues also present issues for OEMs trying to add connectivity to portable, battery-powered devices such as digital cameras.

Bluetooth – The Bluetooth transmission technique was proposed by the FCC 20 years ago, and it had a long military history before that, so this is hardly new technology. Bluetooth is limited to low data rate connections of less than 1 Mbps and it is unable to support streaming media applications. This means it would take 10 hours to send a two-hour movie using Bluetooth. Bluetooth was intended neither as a high data rate technology nor as a true networking technology. In fact, the primary application that catalyzed the Bluetooth initiative was a cordless headset for mobile telephones. Bluetooth has been developed as a low rate, primarily point-to-point, personal area network (PAN) technology to allow synching between PDAs, cell phones and laptops to update things such as email addresses, phone books, etc.

Home RF – Home RF has been successful in meeting the requirements of a very specific end user scenario for voice and data content, mainly allowing broadband Internet access for a variety of computing devices in the home such as PCs, laptops and consumer electronic devices such as MP3 players and other Internet radios. However, at speeds of 11 Mbps, it falls short in delivering the bandwidth for multimedia-rich applications such as digital audio and video, as well as new services including interactive gaming video on demand or home video commerce. Additionally, it has lost industry momentum, with Intel pulling its support and does not appear to be a viable alternative moving forward. Cable MSOs who still support HomeRF are interested primarily in the fact that it is one of the only wireless networking protocols that support VoIP (voice over IP) and thus potentially allow the cable industry to add voice services to their service portfolio.

HiperLAN2 – Also called direct mode (DM), HiperLAN2 is similar in its data rate, power consumption and cost to IEEE 802.11a. It's medium access control (MAC) interface, however, makes it attractive because of its network and application independence. Its central coordinator controls how resources are allocated for downlink, uplink and direct link instructions. The HiperLAN2 home profile was designed as an ad hoc LAN with support for asynchronous services. Therefore, it is also very similar to the high rate version of Bluetooth. Unfortunately, HiperLAN2, like 802.11a,uses OFDM (orthogonal frequency division multiplexing) to achieve data rates as high as 54Mbps. OFDM is very robust in severe multi-path environments such as offices and warehouses. But as home environments are very different from work environments, OFDM technology is overly complex and not an ideal solution for the home environment. The complexity also translates to higher cost, preventing many OEMs from implementing this in consumer electronics products.

In short, all of the wireless solutions currently deployed in the market either lack the data rate to support multiple streams of digital video and/or audio, demand high power making it difficult for portable applications and/or are too expensive to produce for the consumer market.

Solution Needed for Home Market's Multimedia Applications

OEMs in the consumer electronics, computer and networking markets are waiting for a wireless solution. "Consumers have shown in 2001 that they are excited about wireless networking technology," said Mike Wolf, director of enterprise and residential communications with Scottsdale, Arizona-based market research firm Cahners In-Stat. In fact, intriguing home applications are just waiting for the right connectivity solution.

Homes today house a wide array of entertainment devices such as digital televisions, audio/video receivers, DVD players, speakers, MP3 players, digital cameras, etc. With the right wireless networking solution, applications for connectivity in the home will continue to grow. For instance, an entire home theater environment could be constructed with no cables, and it would completely replicate the wired experience. Additionally, home theater source content, such as the DVD player, could be broadcast to another TV in an entirely separate room in the house. With the right wireless solution, technology

will have the opportunity to "follow" users throughout their home so that they can access content no matter which room they are in.

Broadband content from cable, satellite and ADSL service providers is difficult to route within the home without installing cables. With a wireless network, a single set-top box or gateway could wirelessly distribute all of the broadband content coming to the home. Additionally, the set-top box could route Internet access traffic from multiple users within the home to the single broadband connection.

Simply bringing the MP3 player in range of the PC/laptop could transmit digital audio and MP3 files. A video game console, multiple joysticks/controllers and a display could be connected without wires, and a remote player could be connected through the Internet via the set-top box.

Digital cameras are getting more popular as costs decline. To transfer pictures from the camera to a viewing or storage location currently requires a wired connection such as USB or the use of the internal memory card in a reader on a PC/laptop or a viewing device. With a wireless connection, users could walk up to any display device, including a TV, and instantly transfer the images. While traveling, users would no longer need to process photos or send them across the Internet to family and friends. Photo kiosks or process locations would enable nearly instantaneous connection to a digital camera via wireless for instant transfer.

Ultra-Wideband: A Viable Solution for Home Market

While the "what ifs" for wireless connectivity in the home are exciting to imagine, the near-term opportunities for wireless connectivity are of greater interest to the industry. Indeed, by 2003, applications that will use wireless connectivity in the home are expected to include digital camcorders that wirelessly link to the TV, digital cameras that wirelessly link to the TV for viewing or to the PC for storage of images and MP3 players that can wirelessly download and then play music in any room.

Indeed ultra-wideband may be the "David" of the wireless industry. And a renaissance is truly in the making.

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ULTRA-WIDEBAND MYTHS & REALITIES

Myth: *Ultra-wideband operations will interfere with existing services, including GPS and PCS, among others.*

Reality: **The ultra-wideband ("UWB") emission limits proposed by XtremeSpectrum are more than sufficient to protect GPS and incumbent services from harmful interference. In fact, under all currently proposed rules, *UWB presents a lower interference threat than any other FCC-regulated service or device.***

Both the Commission's NPRM and XtremeSpectrum's proposal limit UWB emissions in the "sensitive" bands to a *small fraction* of the power permitted for hundreds of millions of consumer digital devices, not to mention unlicensed transmitters. The presence of ultra-low power UWB in this mix cannot make any difference to the performance of existing services.

In the Global Positioning System ("GPS") band, the proposed protection levels are especially stringent. XtremeSpectrum has proposed a limit of 21 dB below the current Part 15 limit for indoor operations, and 34 dB below the current limit for incidental outdoor operations. (Signal propagation is significantly reduced indoors by walls and furnishings, thereby lessening needed protection.) Compared to current Part 15 limits, this translates into a 99 percent reduction in power for indoor operations and a 99.9 percent reduction in power for incidental outdoor operations, respectively. Moreover, XtremeSpectrum has proposed an additional 10 dB attenuation, based on a 10 kHz bandwidth, to reduce the possibility of interference from spectral lines.

UWB also poses no threat to Personal Communications Service ("PCS") wireless phones, despite certain PCS studies purporting to show interference. These studies' outcomes resulted from a number of flawed assumptions. For example, the studies unrealistically assumed ten times more UWB devices operating in an area the size of New York City than the number of people there. They also ignored the effects of signal leakage from other companies' PCS handsets, which are permitted to run 10,000 times higher than the maximum proposed for UWB. With these and other distortions corrected, the PCS analyses show no interference from UWB.

Despite recent claims by Qualcomm, UWB will not interfere with PCS phones equipped with GPS-based E911. Qualcomm's study was based on three wrong assumptions. First, it assumed that the general Part 15 emissions would apply, when in fact neither the NPRM nor any party supports those levels. As noted above, XtremeSpectrum has proposed levels approximately 99% below Part 15 levels. Second, Qualcomm assumed that no other radio noise would be present, unlike real-world homes and offices filled with electronic devices that operate at much higher levels that will drown out the weaker UWB signals. Correcting these two assumptions brings down the range of potential interference to only a few tens of centimeters or less. In addition,

Qualcomm failed to consider that, unlike open outdoor spaces, ordinary interior walls and furniture severely attenuate UWB signals indoors.

Finally, business realities require that UWB chip manufacturers completely protect existing services, independent of any regulatory requirements. XtremeSpectrum will sell chips to manufacturers, which in turn will install the chips in consumer products. Many of the end products will include other radio-based capabilities, including PCS and GPS. These will have to function correctly while the UWB transmitter operates in the same device, a few centimeters away. The market will ensure that UWB products are absolutely non-interfering to these other services.

Myth: *Adequate protection to incumbent services can only be achieved if UWB operations are prohibited between 1 GHz and 6 GHz.*

Reality: **For the reasons explained above, the proposed emission limits are more than adequate to prevent harmful UWB interference below 3.1 GHz. For operations between 3.1 GHz and 6 GHz, no reduction below the current Part 15 limit is needed to prevent harmful interference to existing services.**

In its November 14, 2001 filing with the FCC, XtremeSpectrum submitted a detailed technical analysis that considered three services between 3.1 GHz and 6 GHz of concern to NTIA – Fixed Satellite Service, Microwave Landing System, and Terminal Doppler Weather Radar. Based on data from the NTIA study, the analysis showed that, when realistic assumptions are used, UWB operations at the current Part 15 limits poses no threat to these services.

Nevertheless, in the interest of resolving the proceeding, XtremeSpectrum does not oppose NTIA's proposed 10 dB attenuation below current Part 15 limits for the 3.1 to 4.2 GHz band. There is no need to reduce, much less prohibit, emissions above 4.2 GHz.

Moreover, a prohibition on UWB operations in the 1-6 GHz range would effectively prevent most UWB communication devices from ever reaching the market. Other than certain radar systems, most consumer applications planned for UWB would require at least some use of this band.

Myth: *The signals emitted from multiple UWB transmitters will accumulate over a city or even a city-block. Therefore, even if the proposed emission limits provide sufficient protection against a few UWB devices, the limits may be inadequate to protect against the hundreds or even thousands of UWB devices that eventually may operate in a given area.*

***Reality*:** **UWB signals to not aggregate. The reason is simple: UWB signals cannot travel far. As they propagate, the signals fall off much faster than they can add up. As a result, only the nearest UWB emitter can be significant. The signals from all others are so weak as to be negligible.**

For example, imagine a circle of 100,000 UWB emitters, each 100 meters away from a receiver. The total signal received at the receiver from all 100,000 units is only 1% of the signal from *one* UWB emitter located 3 meters away. Only the nearest emitter matters.

An analogy may help to explain this effect. Suppose a hotel has a TV playing in every room. A guest in the hotel hears the TV in that room, and might barely hear the immediate neighbors' TVs, but no others. Someone outside the hotel hears nothing at all. In just the same way, a receiver is potentially affected by the nearest UWB emitter, but no others.

The propagation of UWB signals is very similar to that of digital noise emitted from everyday office equipment such as computers, printers, scanners, etc. Considering that emissions from hundreds of millions of such devices do not aggregate to cause harmful interference, we can be certain that the much weaker emissions from UWB devices likewise will not aggregate.

Some parties have pointed to an NTIA *simulation* (not an actual experiment) that predicted aggregation. But that outcome resulted solely from a manipulation of assumptions. The study calculated the cumulative effects of UWB emitters scattered randomly over a target-like pattern of concentric rings, with the "victim receiver" at the center. But in every case where interference was found, the simulation organizers "forced" an extra UWB emitter onto the innermost ring, nearest to the receiver. The effects attributed to aggregation in fact arose from that extra emitter. With the extra emitter removed, the supposed aggregation disappeared. Thus, the study actually shows that aggregation does *not* occur. *No study shows otherwise.*

Moreover, studies showing an increase in the noise floor unrealistically assume that the UWB emitters and test receiver exist alone in isolation, unaffected by any other sources of radio-frequency energy. This is never the case. Populated areas always have a background level of ambient radio noise. UWB will not affect that background level. UWB will not interfere with other services in the real world of ubiquitous noise-emitting devices, most of which are authorized at far higher power than UWB.

Myth: *To protect existing services, UWB operations must be limited to indoor-use only, where interference is less likely due to the protection afforded by exterior walls. To accomplish this, it is necessary to prohibit "peer-to-peer" operations* – i.e., *communications between two battery-operated UWB devices – by requiring that a battery-operated UWB device may only communicate with an AC-powered device.*

***Reality*: A ban on peer-to-peer operations would cut down on UWB use indoors much more than outdoors. It would eliminate some of the most attractive consumer applications, including the ability to synchronize a PDA with a laptop, download a digital camera to a PDA, exchange music files among MP3 players, or exchange business card information between PDAs. Consumers and manufacturers would not find UWB applications practical with such restrictions.**

Instead of a peer-to-peer restriction, a ban on outdoor UWB infrastructure would be sufficient to prevent all but occasional UWB use occurring at about 1 meter above street level (*i.e.*, at hand-held or table-top level). Outdoor UWB use might include brief exchanges of information between PDA devices at a sidewalk café, for example. This close to ground level, propagation is so poor due to environmental ground clutter that harmful interference is not a realistic concern.

Even though it is probably unnecessary, XtremeSpectrum has proposed stricter emission limits for peer-to-peer operations in order to ensure a comparable level of protection with indoor operations. Moreover, the FCC could require that any peer-to-peer operations be specifically initiated by the user as by pressing a button, rather than allowing automatic peer-to-peer operations.

Myth: *UWB is not needed, as it would add little to the current state of wireless communications. Existing technologies such as Bluetooth, 802.11 and Home RF already provide wireless connectivity between electronic devices.*

Reality: **UWB offers three principal advantages over existing technologies: simultaneous delivery of lower cost, higher data rate, and lower power consumption.**

XtremeSpectrum's UWB solution offers a data rate of 100 Mbps, capable of delivering multiple simultaneous streams of multimedia applications. Moreover, because XtremeSpectrum's technology requires very little power – much less than the available technologies – it is ideal for applications where battery life is an issue, such as in portable home electronic devices (PDAs, laptops, digital cameras, etc.).

The FCC has long recognized that consumers stand to benefit from the introduction of new, more flexible technologies. Although the PCS industry has questioned whether UWB is "needed," the PCS industry itself has benefited from the FCC's ongoing efforts to facilitate new technologies and efficient spectrum use. Although cellular systems already provided mobile voice communications, the FCC approved PCS due to the increasing congestion on cellular frequencies and the desire for more competition (including competing technologies). Today, an analogous situation exists with the increasing demand for unlicensed, short-range wireless connectivity between electronic devices at low battery drain, a capability that is not presently available. UWB is poised to meet that need by offering a new, more efficient means of using spectrum to help meet this demand and promote competition, just as innovation from the newcomer PCS industry helped grow the commercial wireless market in the mid-1990s.

Moreover, regulatory authorization of UWB should not be based on a determination of whether additional competition is "needed" in a particular market segment. This would place government regulators in the business of picking technology "winners," a task that is best left to the marketplace.

Myth: *UWB devices need to be licensed, or at a minimum, subject to coordination procedures. This will allow UWB proponents to move forward while at the same time providing a means of determining who is using UWB devices and where they are located. This will help UWB systems to avoid causing interference and will enable others to track any interference that occurs.*

Reality: **Placing a licensing requirement on UWB operations would prevent the vast majority of UWB applications from ever reaching the marketplace. The real value of UWB comes from the advantages it can bring to mass-market consumer products, which cannot (and need not) be licensed or coordinated.**

No one can realistically expect every purchaser of a UWB-equipped laptop, digital camera, or Palm-type PDA to file a license application with the FCC, and then refile every time the product is moved to a new location. Given the logistical impracticality of licensing mass-market equipment, the FCC long ago created Part 15 so that low-power, non-interfering devices could operate on an unlicensed basis.

Moreover, licensing is unnecessary to prevent interference. The power limits proposed for UWB are lower than those for than any other device, licensed or unlicensed, covered in the FCC's rules. All existing services below 3.1 MHz would receive substantially more protection from UWB than from any other type of device, and services operating at higher frequencies would receive at least as much protection as they receive from all other devices, including ubiquitous computers and other digital devices. In short, UWB licensing would serve no purpose other than effectively denying consumers access to UWB technology.

Myth: *There is no harm in taking the additional time needed for the FCC and the other government agencies to consider carefully the concerns raised by the many interested parties in this proceeding and to conduct additional studies as appropriate. The need to avoid harmful interference to existing services demands as much.*

Reality: **The FCC already has carefully considered the concerns of the many interested parties, as expressed in over 800 submissions over the course of the last three and half years. Indeed, most of the more recent submissions are little more than reiterations of earlier arguments. The FCC also has reviewed several technical studies addressing UWB. Based on its exhaustive consideration of the issues, the FCC has drafted rules to prevent interference to incumbent services. All parties, including other government agencies, have had ample time in which to provide input.**

Additional delays will only result in fewer UWB manufacturers competing in the marketplace. Many of the UWB innovators and intellectual property holders are small companies that have been operating on venture capital pending the outcome of the UWB proceeding, now well into its fourth year. At least one UWB company, Fantasma, has already folded while waiting for approval. Investors of the remaining companies likewise may soon question the wisdom of committing additional funds to a new technology if it appears to be stymied indefinitely by the regulatory approval process. Pulse Link, Inc., another UWB developer, recently wrote the FCC to explain that even a few months of additional delay could mean the difference in "life and death" for the company.

Myth: *Because UWB would operate across spectrum bands that are already allocated for other services, approval of UWB would result in a "zero-sum" situation. Any new wireless applications using UWB would come at the expense of incumbent spectrum users who would be faced with new interference issues resulting from the spectrum sharing.*

Reality: **For the many reasons already explained, UWB operations will not cause interference to existing spectrum users. One of the great advantages of operating across a wide bandwidth is that the energy emitted at any one frequency is so weak as to be unnoticeable to other spectrum users, thereby permitting simultaneous dual use of a given band.**

With the ability to operate on a non-interfering basis across frequency bands that are already in use, UWB will enable efficient spectrum usage, a long-time goal of the FCC and one that is increasingly urgent as the demand for wireless communication grows. Far from being a "zero-sum" game, UWB in effect "grows the pie" by providing the flexibility that will new unlicensed users to benefit without affecting incumbents.

As FCC Chairman Powell recently remarked, new technology "is increasingly teaching us ways to let people share and coordinate." According to Chairman Powell, UWB is one "remarkable" new technology that operates contrary to traditional radiation assumptions. In this respect, UWB can play an important role in developing new spectrum management principles that will focus on finding ways to allow all to prosper, rather than refereeing fights between "competing" uses.

For decades, the FCC has, through its Part 15 rules, permitted the unlicensed use of spectrum allocated to specific services, on the condition that the unlicensed use not interfere with the licensed use. Because it will not interfere, approval of UWB would be consistent with this long-standing policy and would not represent any diminution of the licensees' existing rights.

Myth: *Because the NPRM did not contain specific draft rules, the FCC is obligated under administrative law to issue another NPRM containing proposed rule language. Only after considering public comment on the actual draft rules may the FCC proceed to promulgate final UWB rules.*

Reality: **Section 553(b)(3) of the Administrative Procedures Act ("APA") requires only that an agency include in its NPRM "*either* the terms or substance of the proposed rule *or* a description of the subjects and issues involved." 5 U.S.C. § 553(b) (emphasis added). No statutory provision or judicial decision requires the FCC to issue draft rules prior to promulgating final rules.**

The FCC is not required to specify every precise proposal that it may ultimately adopt as a rule, so long as parties are fairly apprised of the issues involved.[1] Moreover, parties "need not have an opportunity to comment on every bit of information influencing an agency's decision."[2]

Contrary to the assertions of those calling for another NPRM, the fact that there have been over 800 submissions in the record, including several technical studies, weighs *against* the need for further notice and comment. Courts have held that the APA requires only that agencies provide "sufficient factual detail and rationale for the rule to permit interested parties to comment meaningfully."[3] Given the volume of detailed submissions in the record, no one can seriously suggest that parties have had an inadequate opportunity to submit meaningful comment during the past three and a half years of this proceeding.

Finally, while many parties, including XtremeSpectrum, have recommended changes to some of the proposals in the NPRM, the suggestions have been a logical outgrowth of the original proposals, and so do not require a further notice.[4] Moreover, all of the changes presently recommended by both UWB proponents and opponents call for rules that are *more restrictive* on UWB operations than the rules initially proposed, which makes the argument for another NPRM is even less persuasive.

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[1] *See, e.g., Spartan Radiocasting Co. v. FCC*, 619 F.2d 314 (4th Cir. 1980); *Penzoil Co. v FERC,* 645 F.2d 360 (5th Cir. 1981); *California Citizens Band Association v. United States,* 375 F.2d 43, 48 (9th Cir.), *cert. denied*, 389 U.S. 844 (1967).

[2] *State of Texas v. Lyng*, 868 F.2d 795, 80 (5th Cir. 1989).

[3] *Florida Power & Light Co. v. United States*, 846 F.2d 765, 771 (D.C. Cir. 1988), *cert. denied*, 490 U.S. 1045 (1989).

[4] *Omnipoint Corp. v. FCC*, 78 F.3d 620, 631 (D.C. Cir. 1996), *citing American Water Works Ass'n. v. EPA*, 40 F.3d 1266, 1274 (D.C. Cir. 1994).

Myth: *Some of the strict UWB emission limits proposed by NTIA and endorsed by other parties would represent the first time such stringent limits have been applied to Part 15 devices. If adopted by the FCC, these very conservative limits will become precedent for other proceedings.*

Reality: **The adoption of overly conservative emission limits for UWB need not become binding precedent for other proceedings. The FCC can limit the prospective scope of its decision by explicitly stating so in its Report & Order.**

The UWB proceeding has generated more than the usual degree of controversy and opposition. In order to address the concerns of various interested parties, take account of the significant safety-of-life and commercial applications that potentially could be affected and avoid additional delay in the inter-agency review process, the FCC has the discretion to adopt limits that are more conservative than some of the UWB proponents feel would be necessary to avoid harmful interference.

By acknowledging the unusual circumstances of the proceeding, the FCC can expressly eliminate any precedential value its decision might otherwise have.